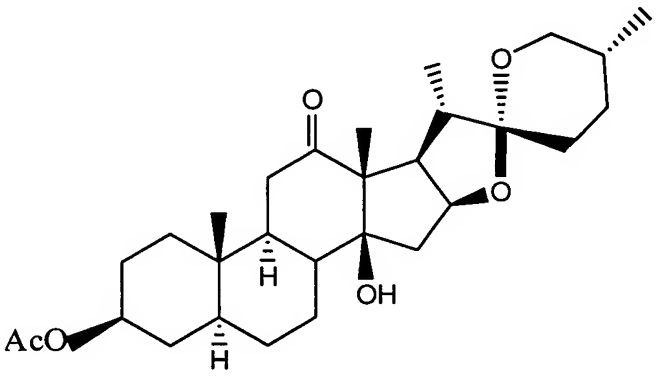
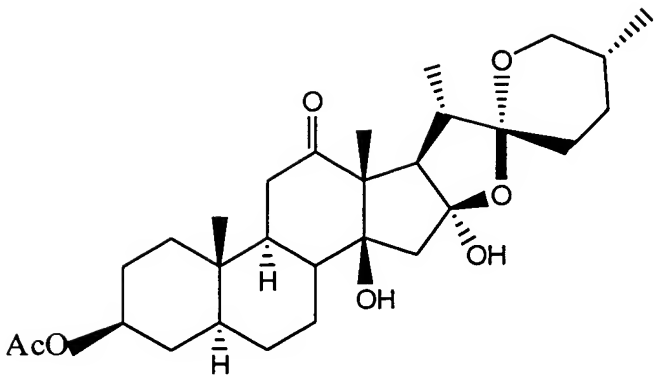
In the Claims:

Claims 2, 9-21 and 23-31 are cancelled, claims 32-34 are newly added and the remaining claims are amended as indicated below.

1. (Currently amended) A method of oxidizing a hydrocarbon according to the chemical structure:



comprising reacting the hydrocarbon in an anhydrous solvent with a chromium [VI] oxidant and a co-oxidant at a reaction temperature of between about -50°C to about 0°C, thereby catalytically and chemospecifically oxidizing the hydrocarbon: (i) substantially stereospecifically at a tertiary carbon to form a ~~tertiary alcohol or~~ hemiacetal~~, or (ii) at a one or more secondary carbons to form a ketone or dione, or (iii) at cis tertiary CH groups to form a ring cleaved dione.~~ according to the structure:



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wherein the chromium [VI] oxidant is selected from the group consisting of CrO_3 , chromoyl diacetate, chromoyl chloride, chromoyl bistrifluoroacetate, chromoyl bistriflate, and chromoyl bis t-butylester, the co-oxidant is selected from the group consisting of periodic acid, tetrabutylammonium periodate, hydrogen peroxide, t-butyl hydroperoxide, diacyl peroxides, TMSOOTMS, peroxydisulfate and persulfate, and the solvent is selected from the group consisting of acetic acid, acetonitrile, methylene chloride and mixtures, thereof

2. Cancelled.

3. (Currently amended) The method of claim ~~2~~ 1, wherein the chromium [VI] oxidant is chromoyl diacetate, the co-oxidant is periodic acid or tetrabutylammonium periodate , the solvent is a mixture of acetonitrile and methylene chloride, the reaction time is from about thirty minutes to about three hours, and the reaction takes place under a positive pressure of inert gas.

4. (Currently amended) The method of claim ~~2~~ 1, wherein a mixture solution of the hydrocarbon, chromium [VI] oxidant and an aqueous solvent is formed and a mixture of co-oxidant and aqueous solvent is added to the mixture solution.

5. (Original) The method of claim 4, wherein the mixture solution of hydrocarbon,

chromium [VI] oxidant and anhydrous solvent comprises CrO_3, methylene chloride and acetonitrile and the mixture of co-oxidant and an anhydrous solvent comprises periodic acid and acetonitrile.

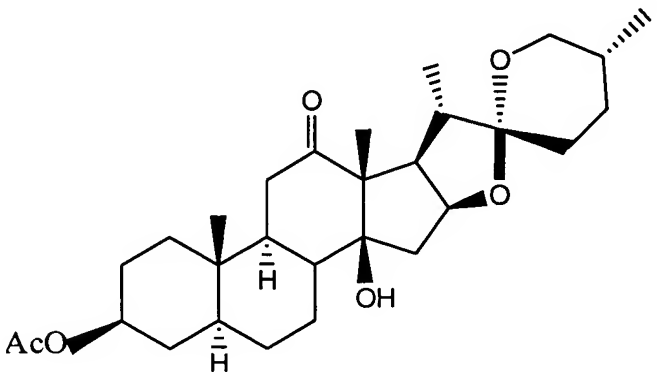
6. (Original) The method of claim 4, wherein the mixture solution of hydrocarbon, chromium [VI] oxidant and anhydrous solvent comprises chromoyl diacetate, methylene chloride and acetonitrile and the mixture of co-oxidant and anhydrous solvent comprises tetrabutylammonium periodate and acetonitrile.

7. (Currently amended) The method of claims ~~5 and~~ 5 or 6, wherein the reaction temperature is approximately -50°C to approximately -20°C.

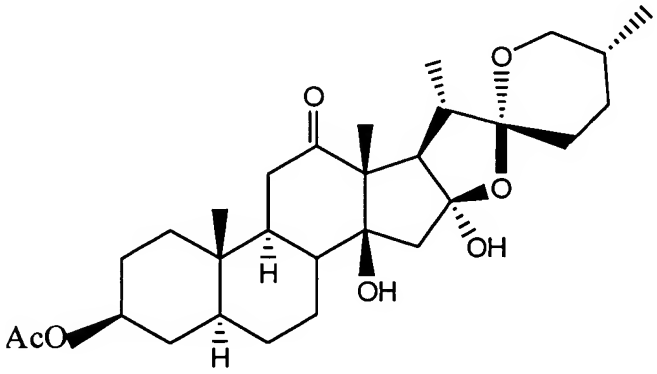
8. (Original) The method of claim 7, wherein the reaction temperature is approximately -40° C.

9-21. Cancelled.

22. (Currently amended) A method of oxidizing a hydrocarbon according to the structure:



comprising reacting the hydrocarbon in an anhydrous solvent with a CrO_3 or chromoyl diacetate oxidant and a periodic acid or tetrabutylammonium periodate co-oxidant at a reaction temperature of between about -60°C to about -20°C, thereby catalytically and chemospecifically oxidizing the hydrocarbon~~: (i)~~ substantially stereospecifically at a tertiary C-H bond to form a ~~tertiary alcohol or~~ hemiacetal~~, (ii) at a one or more secondary carbons to form a ketone or dione, or (iii) at cis tertiary C-H groups to form a ring cleaved dione~~ according to the structure:



23-31. Cancelled.

The following claims are new.

32. (New) The method according to claim 22 wherein said anhydrous solvent is selected from the group consisting of methylene chloride, acetonitrile and mixtures thereof.

33. (New) The method according to claim 22 wherein said solvent is a mixture of methylene chloride and acetonitrile.

34. (New) The method according to claim 22 wherein said oxidant is CrO_3 and said co-oxidant is tetrabutylammonium periodate.